UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,154	10/03/2003	Steven J. Simske	100202598-1	3961

22879 7590 03/21/2007

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER	
BLACKWELL, JAMES H	
ART UNIT	PAPER NUMBER
2176	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/679,154	SIMSKE ET AL.	
	Examiner	Art Unit	
	James H. Blackwell	2176	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-48 and 50-65* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-48 and 50-65* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/26/2006 has been entered.

2. The priority date is **10/03/2003**.

3. Claims 1-48, and 50-65 are currently pending.

4. Claims 1, 22, and 48 are independent claims.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2, 22-24, 26, 46, and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanikoglu et al. (hereinafter Yanikoglu, "Pink Panther: A Complete Environment For Ground-Truthing and Benchmarking Document Page Segmentation", in Pattern Recognition, Vol. 31, No. 9, pp. 1191-1204, (c) 1998).

In regard to independent Claim 1 (and similarly independent Claim 48), Yanikoglu discloses:

Note: for purposes of examination, the definition step is assumed to be either manual or automatic.

- *a definition of at least one region in an image, the region definition having a location specification and a type specification* (Pg. 1194, Sec. 3.2;→ allows a user to view a document image and draw zones of various types around the different page regions, using simple mouse clicks, thereby defining regions in the image; after drawing the zone, one can label it with its type, subtype, parent zone, attached zones, and any number of attributes; Fig. 1 discloses position and

type specifications associated with the zones and the image as a whole in the output RDIFF file);

- *displaying the boundaries of the at least one defined region according to its type specification* (Pg. 1194-1195; Sec. 3.2;→ after drawing a zone, one can label it with its type, subtype, parent zone, attached zones, and any number of attributes. Also see screen snapshot in Pg. 1196, Fig. 3).
- *receiving a user-specified definition of a visible area in the image, the visible area definition having a specification of margins around the image* (Pg. 1196, Fig. 3;→ clearly discloses where the user has drawn polygons around regions which are recorded in RDIFF file (Fig. 1) with positional information).
- *generating an image layout definition comprising the region definition and the visible area definition* (Pg. 1195, Sec. 3.2;→ image layout definition is created in RDIFF format).

In regard to independent Claim 22, Claim 22 reflects the method of processing and image as disclosed in Claim 1 (and similarly Claim 48), and is rejected along the same rationale.

In addition, Yanikoglu discloses:

- *searching for an image layout definition template that best matches the generated image layout definition; and conforming the generated image layout definition to the best-matched image layout definition template* (Pg. 1195, Sec. 4;→ describes a segmentation benchmarking algorithm which takes previously

created RDIFF files (ground truth) and compares them to files produced by various segmentation algorithms on the same document sets. This suggests that during the testing of a particular segmentation algorithm, a search would have been made for an RDIFF file to compare to the output generated from the particular segmentation algorithm).

In regard to dependent Claim 2 (and similarly dependent Claim 23), Yanikoglu discloses:

- *displaying the image on a display* (see Pg. 1196, Fig. 3;→ screen snapshot of GroundsKeeper with image with drawn zones. Each zone is given a unique identifying number, displayed on the screen).

In regard to dependent Claims 24, 26, and 46, Claims 24, 26, and 46 contains subject matter similar to that disclosed in Claim 1 (and similarly Claim 48) and are similarly rejected.

7. Claims 12-14, 33-35, and 58-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanikoglu.

In regard to dependent Claim 12-14 (and similarly dependent Claims 33-35, and 58-60), Yanikoglu fails to expressly disclose limitations for manipulating scanned document images for purposes of displaying or transmitting in order to provide an image that is the appropriate size, dimension, color depth for the given action.

However, such functions were known and obvious to one of ordinary skill in the art at the time of invention particularly with respect to graphical user interfaces where one would have desired to view entire images on a screen independent of the size of the actual image for purposes such as identifying regions of interest

8. Claims 3, 11, 25, 32, and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanikoglu in view of Revankar et al. (hereinafter Revankar, U.S. Patent No. 5,767,978 filed 01/21/1997, issued 06/16/1998).

In regard to dependent Claim 3 (and similarly dependent Claim 25), Yanikoglu fails to expressly disclose:

Note: The Specification defines a modality as a description of a region as to whether it is *black-and-white, gray scale, or color layout element, which also specifies the bit depth of the region.*

- *receiving a definition of at least one region in an image further comprises receiving a modality specification.*

However, Revankar discloses (Abstract;→ image segmentation according to classes of regions that may be rendered according to the same imaging techniques. Image regions may be rendered according to a three-class system (such as traditional text, graphic and picture systems), or according to more than three image classes. In addition, only two image classes may be required to render high quality draft or final output images. The image characteristics that may be rendered differently from class to class may include half toning, colorization and other image attributes).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the disclosures of Yanikoglu and Revankar as both inventions relate to image segmentation. Adding the disclosure of Revankar provides the benefit of recognizing region types by class and by modality (color, bit depth, etc.).

It is noted that Yanikoglu may disclose this limitation (Pg. 1196, Fig. 3;→ suggests that zones are characterized by modality (Box at bottom of screen dump shows Zone6 with adjacent label as Halftone). Also, Yanikoglu discusses the prior art (Pg. 1191) and suggests that also describing a modality for a zone was performed. However, there does not appear to be enough of a description of GroundsKeeper in Yanikoglu to determine this.

In regard to dependent Claim 11 (and similarly dependent Claims 32 and 57), Yanikoglu fails to expressly disclose:

- *receiving a definition of a visible area in the image comprises*
    - *receiving a user input indicative of a first vertex and a location of a second vertex opposite the first vertex of the visible area on the image.*

However, Revankar discloses (Abstract;→ image segmentation according to classes of regions that may be rendered according to the same imaging techniques. Image regions may be rendered according to a three-class system (such as traditional text, graphic and picture systems), or according to more than three image classes. In addition, only two image classes may be required to render high quality draft or final

output images. The image characteristics that may be rendered differently from class to class may include half toning, colorization and other image attributes).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the disclosures of Yanikoglu and Revankar as both inventions relate to image segmentation. Adding the disclosure of Revankar provides the benefit of recognizing region types by class and by modality (color, bit depth, etc.).

9. Claims 4, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanikoglu in view of Hall Jr. et al. (hereinafter Hall, U.S. Patent No. 6,768,816 filed 06/13/2002, issued 07/27/2004).

In regard to dependent Claim 4 (and similarly dependent Claim 50), Yanikoglu fails to expressly disclose:

Note: it is not clear from Yanikoglu (in describing GroundsKeeper) whether or not automatic segmentation analysis is possible in GroundsKeeper, but the reference suggests that GroundsKeeper requires user interaction in defining zones.

- *automatically determining the definition of the at least one region in the image by segmentation analysis of the image.*

However, Hall discloses (see Fig. 4;→ represents a display of a document for which automatic segmentation has been performed).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the disclosures of Yanikoglu and Hall as both inventions are related to

image segmentation and layout analysis. Adding the disclosure of Hall provides the benefit of an initial guess as to how the image should be segmented.

10. Claims 5, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanikoglu in view of Sakai et al. (hereinafter Sakai, U.S. Patent No. 6,735,740 filed 03/04/1998, issued 05/11/2004).

In regard to dependent Claim 5 (and similarly dependent Claim 51), Yanikoglu fails to expressly disclose:

- *receiving a definition of at least one region in the image comprises*
    - *automatically determining the definition of the at least one region in the image by classification analysis of the image.*

However, Sakai discloses such a limitation (Figs. 10A-C; → depict progressive classification of image regions based on type).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the disclosures of Yanikoglu and Sakai as both inventions relate to document image analysis. Adding the disclosure of Sakai provides the benefit of partitioning an image based on types of content identified in the image

11. Claims 6, 27, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanikoglu in view of Ohta (U.S. Patent No. 6,163,623 filed 07/26/1995, issued 12/19/2000).

In regard to dependent Claim 6 (and similarly dependent Claims 27, and 52), Yanikoglu fails to expressly disclose:

Note: interpreted as essentially user designation of a point in the document image and the method computing a region about the point.

- *receiving a definition of at least one region in the image comprises:*
    - *receiving a user input indicative of a point on the image; and*
    - *defining a region encompassing the point using segmentation and classification analyses of the image. (basically indicating with a mouse a region and the method computing a region about the mark)*

However, Ohta discloses (Col. 7, line 46---Col. 8, line 2;→ scanning a documents, rendering it to a touch display, and allowing the user to manually select a region or regions to further process; the drawing of a box is done automatically based on the user input).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the disclosures of Yanikoglu and Ohta as both disclosures relate to document analysis. Adding the disclosure of Ohta provides the user with a means to easily designate zones without the need to manually draw on the screen.

12. Claims 7, 15, 28, 36, and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanikoglu in view of Rangarajan (U.S. Patent No. 5,822,454 filed 04/10/1995, issued 10/13/1998).

In regard to dependent Claim 7 (and similarly dependent Claims 28, and 53), Yanikoglu fails to expressly disclose:

- *receiving a definition of at least one region in the image comprises:*
    - *receiving a user input indicative of boundaries of the region on the image; and*
    - *receiving a user input indicative of region type and region modality specifications.*

However, Rangarajan discloses (Col. 9, lines 15-27; Figs. 7A-B;→ a conventional set of drawing-like tools with which the user can graphically create the user defined zones. This is done by choosing an appropriate drawing tool, such as a rectangle or polygon creation tool, and applying it to the de-skewed image to select the individual areas or zones containing the desired text information. Fig. 7a illustrates one example of a suitable user interface 705, showing a de-skewed document 700. Fig. 7b illustrates the same document now including a number of user-defined zones 701. A palette of drawing tools 703 is also shown, with various graphical tools for selecting the user-defined zones 701. Once the user defines a number of zones, the coordinates of the boundary of each of user defined zone is stored, preferably using the coordinates of an upper left hand corner, and a lower right hand corner where the user defined zone is a

rectangle. For general polygonal user defined zones, the coordinates of each vertex may also be stored (Col. 9, lines 15-37; Figs. 7A-B).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the disclosures of Yanikoglu and Rangarajan as both inventions relate to document image analysis. Adding the disclosure of Rangarajan provides the benefit of manually defining image zones.

In regard to dependent Claim 15 (and similarly dependent Claim 36), Yanikoglu fails to expressly disclose:

- *receiving definition of at least one region comprises*
    - *receiving a user specification of a location and boundaries of a region in the image.*

However, Rangarajan discloses (Col. 9, lines 15-37;→ inputting polygons) input of vertices to define an image region).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the disclosures of Yanikoglu and Rangarajan as both inventions relate to document image analysis. Adding the disclosure of Rangarajan provides the benefit of manually defining image regions.

13. Claims 8-10, 17, 29-31, 38, and 54-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanikoglu in view of Rangarajan, and in further view of Revankar.

In regard to dependent Claim 8 (and similarly dependent Claims 29, and 54), Yanikoglu fails to expressly disclose:

- *receiving a definition of at least one region in the image comprises:*
    - *receiving a user input indicative of vertices of the region on the image; and*

However, Rangarajan discloses (Col. 9, lines 15-37;→ input of vertices to define an image region).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the disclosures of Yanikoglu and Rangarajan as both inventions relate to document image analysis. Adding the disclosure of Rangarajan provides the benefit of manually defining image regions.

Yanikoglu and Rangarajan fail to expressly disclose:

- *receiving a user input indicative of region type and region modality specifications.*

However, Revankar discloses (Abstract;→ image segmentation according to classes of regions that may be rendered according to the same imaging techniques. Image regions may be rendered according to a three-class system (such as traditional text, graphic and picture systems), or according to more than three image classes. In addition, only two image classes may be required to render high quality draft or final

output images. The image characteristics that may be rendered differently from class to class may include half toning, colorization and other image attributes).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the disclosures of Yanikoglu, Rangarajan, and Revankar as both inventions relate to image segmentation. Adding the disclosure of Revankar provides the benefit of recognizing region types by class and by modality (color, bit depth, etc.).

In regard to dependent Claim 9 (and similarly dependent Claims 30, and 55), Yanikoglu fails to expressly disclose:

- receiving a user input indicative of vertices of a polygonal region on the image.

However, Rangarajan discloses (Col. 9, lines 15-37→ input of vertices to define an image region).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the disclosures of Yanikoglu and Rangarajan as both inventions relate to document image analysis. Adding the disclosure of Rangarajan provides the benefit of manually defining image regions.

Yanikoglu and Rangarajan fail to expressly disclose:

- *receiving a user input indicative of region type and region modality specifications of the polygonal region.*

However, Revankar discloses (Abstract;→ image segmentation according to classes of regions that may be rendered according to the same imaging techniques. Image regions may be rendered according to a three-class system (such as traditional text,

graphic and picture systems), or according to more than three image classes. In addition, only two image classes may be required to render high quality draft or final output images. The image characteristics that may be rendered differently from class to class may include half toning, colorization and other image attributes).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the disclosure of Yanikoglu, Ranqarajan, and Revankar as all three inventions relate to image segmentation. Adding the disclosure of Revankar provides the benefit of recognizing region types by class and by modality (color, bit depth, etc.).

In regard to dependent Claim 10 (and similarly dependent Claims 31, and 56), Yanikoglu fails to expressly disclose:

- *receiving a user input indicative of a first vertex and a location of a second vertex opposite the first vertex of a rectangular region on the image;*

However, Rangarajan discloses (Col. 9, lines 15-37;→ input of vertices to define an image region).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the disclosures of Yanikoglu and Rangarajan as both inventions relate to document image analysis. Adding the disclosure of Rangarajan provides the benefit of manually defining image regions.

Yanikoglu and Rangarajan fail to expressly disclose:

- *receiving a user input indicative of region type and region modality specifications of the rectangular region.*

However, Revankar discloses (Abstract;→ image segmentation according to classes of regions that may be rendered according to the same imaging techniques. Image regions may be rendered according to a three-class system (such as traditional text, graphic and picture systems), or according to more than three image classes. In addition, only two image classes may be required to render high quality draft or final output images. The image characteristics that may be rendered differently from class to class may include half toning, colorization and other image attributes).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the disclosures of Yanikoglu, Rangarajan, and Revankar as all three inventions relate to image segmentation. Adding the disclosure of Revankar provides the benefit of recognizing region types by class and by modality (color, bit depth, etc.).

In regard to dependent Claim 17 (and similarly dependent Claim 38), Yanikoglu fails to expressly disclose:

- *receiving definition of at least one region comprises*
    - *receiving user specification of region type and region modality.*

However, Revankar discloses (Abstract;→ image segmentation according to classes of regions that may be rendered according to the same imaging techniques. Image regions may be rendered according to a three-class system (such as traditional text, graphic and picture systems), or according to more than three image classes. In addition, only two image classes may be required to render high quality draft or final

output images. The image characteristics that may be rendered differently from class to class may include half toning, colorization and other image attributes).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the disclosures of Yanikoglu and Revankar as both inventions relate to image segmentation. Adding the disclosure of Revankar provides the benefit of recognizing region types by class and by modality (color, bit depth, etc.).

14. Claims 16, 20, 37, 41, 61, and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanikoglu in view of Rangarajan, and in further view of Mahoney et al. (hereinafter Mahoney, U.S. Patent No. 5,999,664 filed 11/14/1997, issued 12/07/1999).

In regard to dependent Claim 16 (and similarly dependent Claims 37, and 61), Yanikoglu fails to expressly disclose:

- *receiving definition of at least one region comprises*
    - *verifying the user-specified region location and boundaries conform to at least one region management model.*

However, Mahoney discloses (Col. 20, lines 45-63;→ searching and identifying documents based on their makeup (structure, content, etc.). Their system performs structural analysis at two levels. At the lower level, specific layout formats of a document can be identified (e.g., the recipient field of a letter or the header field of a memo). Such identification is performed herein using features. At the higher level, the entire configuration of an input document is captured using genre models. For example,

a "business letter" is a genre model of a document that can be defined in most instances by a letter-date feature, a letter-recipient feature, a letter-cc feature, and a letter-signature feature (as shown in Fig. 3). Although some models may have some features in common, such models may still be distinguishable from each other by either the presence or absence of other features. For example, a memo and a letter may have similar letter-signature features while each may have different document header features (e.g., four-memo mark and letter-recipient)).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the disclosures of Yanikoglu, Rangarajan, and Mahoney as all three inventions relate to comparing document images to models or templates of documents. Adding the disclosure of Mahoney provides the benefit of identifying documents (or regions thereof) with layout models.

In regard to dependent Claim 20 (and similarly dependent Claims 41, and 64), Yanikoglu fails to expressly disclose:

- *verifying the user-specified region location and boundaries conform to at least one region management model comprises*
    - *determining whether the user-specified region boundaries fall within the visible area.*

However, Mahoney discloses (Col. 20, lines 45-62;→searching and identifying documents based on their makeup (structure, content, etc.). Their system performs structural analysis at two levels. At the lower level, specific layout formats of a

document can be identified (e.g., the recipient field of a letter or the header field of a memo). Such identification is performed herein using features. At the higher level, the entire configuration of an input document is captured using genre models. For example, a "business letter" is a genre model of a document that can be defined in most instances by a letter-date feature, a letter-recipient feature, a letter-cc feature, and a letter-signature feature (as shown in Fig. 3). Although some models may have some features in common, such models may still be distinguishable from each other by either the presence or absence of other features. For example, a memo and a letter may have similar letter-signature features while each may have different document header features (e.g., four-memo mark and letter-recipient)).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the disclosures of Yanikoglu and Mahoney as both inventions relate to comparing document images to models or templates of documents. Adding the disclosure of Mahoney provides the benefit of identifying documents (or regions thereof) with layout models.

15. Claims 18-19, 39-40, and 62-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanikoglu in view of Rangarajan, and in further view of Mahoney, and in further view of Taylor et al. (hereinafter Taylor, U.S. Patent No. 5,848,184 filed 06/30/1995, issued 12/08/1998).

In regard to dependent Claims 18-19 (and similarly dependent Claims 39-40, and 62-63), Yanikoglu, Rangarajan, and Mahoney fail to expressly disclose:

- *verifying the user-specified region location and boundaries conform to at least one region management model comprises*
    - *determining whether the user-specified region boundaries overlap (or cross) with another region.*

However, Taylor discloses (Col. 7, lines 36-63;→detection of overlapping boundaries as well as bounding boxes, which cross one another).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the disclosures of Yanikoglu, Rangarajan, Mahoney, and Taylor as all of these inventions relate to the analysis of document images. Adding the disclosure of Taylor provides the benefit of detecting overlapping/crossing boundary boxes.

16. Claims 21, 42, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanikoglu in view of Rangarajan, and in further view of Mahoney, and in further view of Ahlstrom et al. (hereinafter Ahlstrom, U.S. Patent No. 6,594,030 filed 08/27/1999, issued 07/15/2003).

In regard to dependent Claim 21 (and similarly dependent Claims 42, and 65), Yanikoglu, Rangarajan, and Mahoney fail to expressly disclose:

- *determining whether the user-specified region comply with a predetermined multiple z-order specification.*

However, Ahlstrom discloses (Col. 6, lines 23-56;→ z-order as it relates to how pages are overlapped upon one another).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the disclosures of Yanikoglu, Rangarajan, Mahoney, and Ahlstrom as all of these inventions relate to analysis of page objects. Adding the disclosure of Ahlstrom provides the benefit of checking z-ordering of pages.

17. Claims 43-45, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanikoglu in view of Mahoney.

In regard to dependent Claims 43-45, and 47, Yanikoglu fails to expressly disclose adjusting the location, type, modality, or visible area specification of the at/east one region of the image layout definition.

However Mahoney discloses (Abstract;→ a document search system provides a user with a programming interface for dynamically specifying features of documents recorded in a corpus of documents). Mahoney provides a user interface which allows for the definition or adjustment of a given documents' parameters in order to search a corpus of documents looking for similarities.

Thus, it would have been obvious to one of ordinary skill in the art at the time of invention to use the user interface of Mahoney to make adjustments in the model of a current document to make identification of all or a part of similar documents more likely.

It also would have been obvious to one of ordinary skill in the art at the time of invention to combine the disclosures of Yanikoglu and Mahoney as both inventions relate to comparing document images to models or templates of documents. Adding the

disclosure of Mahoney provides the benefit of identifying documents (or regions thereof) with layout models.

Response to Arguments

18. Applicant's arguments with respect to claims 1-48, and 50-65 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James H. Blackwell whose telephone number is 571-272-4089. The examiner can normally be reached on Mon-Fri.

20. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Heather R. Herndon can be reached on 571-272-4136. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

21. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

James H. Blackwell
03/09/2007

H Herndon

Heather R. Herndon
Supervisory Patent Examiner
Technology Center 2100